

# **Overview of Regional Cooperative Research Programs**

**April 2005**

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## **Summary of Funding Levels**

Cooperative research has a long history within the NOAA Fisheries Service (NMFS), and has been used by all NMFS regions to supplement existing NMFS research activities since the 1940's. In more recent years, Congressional 'earmarks' have led to dedicated funding for the design and implementation of regional cooperative research programs. Congressional funds provided through the National Cooperative Research Program have been used to provide overall coordination, as well as supplemental funding for all six NMFS regional cooperative research programs. Congressional line items currently support NMFS regional programs in the Northeast, the Southeast, and the Northwest. Congressional funding is also provided for the Northeast Consortium, and research-set-aside programs are conducted by the New England and Mid-Atlantic Fishery Management Councils. Tables 1 and 2 provide overviews of the funding history for the various cooperative research programs. From 1999 - 2005, a total of almost \$70 million has been appropriated for cooperative research activities in the U.S. Many of the NMFS Science Centers also conduct cooperative research activities with base funding. Other programs that support cooperative research activities are the NMFS reducing bycatch program, the Saltonstall-Kennedy grants program, and Sea Grant extension programs. Specific cooperative research projects may also be supported by individual NOAA Line Offices – for example, the Highly Migratory Species Program. A summary of all cooperative research activities is included in this document.

Table 1. Overview of national and regional cooperative research program, including lead agency, committee oversight and history of Congressional appropriations.

Region	Program	Lead Agency	Oversight	Congressional Appropriations **
<b>National</b>	Cooperative Research Program	NOAA Fisheries - Headquarters F/ST4	Funds distributed to regional programs - regional program spend plans required  NMFS Cooperative Research Working Group	FY01 - \$2.993 million FY02 - \$2.75 million FY03 - \$1.043 million FY04 - \$2.626 million FY05 - \$2.710 million
<b>Northeast</b>	Cooperative Research Program - Research Partners Program 1/	Northeast Regional Office/Northeast Fisheries Science Center	New England Fishery Management Council Research Steering Committee	FY00 - \$4 million FY01 - \$6.6 million FY02 - \$3.75 million FY03 - \$3.726 million FY04 - \$2.846 million FY05 - \$3.695 million
	Northeast Consortium Cooperative Research	Northeast Consortium	Advisory Committee composed of University of New Hampshire, University of Maine, Massachusetts Institute of Technology, Woods Hole Oceanographic Institute, NMFS	FY99 - \$2.0 million FY00 - \$2.0 million FY01 - \$4.855 million FY02 - \$4.828 million FY03 - \$4.968 million FY04 - \$4.876 million FY05 - \$4.927 million
	Research Set-Aside Program	Mid-Atlantic Fishery Management Council  New England Fishery Management Council	Mid-Atlantic Fishery Management Council Science and Statistical Committee (SSC)  New England Fishery Management Council Science and Statistical Committee (SSC)	3% of the Total Allowable Catch (TAC) of summer flounder, scup, black sea bass, Atlantic mackerel, <i>Loligo</i> and <i>Illex</i> squid, butterfish, tilefish, bluefish  1% of the TAC or days-at-sea (DAS) of sea scallops
<b>Southeast</b>	Cooperative Research Program 1/	Southeast Regional Office/Southeast Fisheries Science Center	CRP Steering Committee	FY01 - \$2.495 million FY02 - \$3.0 million FY03 - \$3.229 million FY04 - \$3.216 million FY05 - \$4.188 million

<b>South Carolina</b>	Cooperative research	South Carolina Department of Natural Resources		FY04 - \$1.979 million
<b>Southwest</b>	Funded under National Cooperative Research Program	Southwest Fisheries Science Center		
<b>Northwest</b>	Cooperative Research Program (groundfish) 1/	Northwest Fisheries Science Center	NWFSC with participation of the Pacific States Marine Fisheries Commission	FY04 - \$989K FY05 - \$493K
<b>Alaska</b>	Funded under National Cooperative Research Program	Alaska Fisheries Science Center		
<b>Pacific</b>	Funded under National Cooperative Research Program	Pacific Islands Fisheries Science Center		

\*\* Appropriation amounts are after rescissions, taxes, etc.

Table 2. Overview of the allocation of the NMFS National Cooperative Research Program funds to NMFS regional cooperative research programs.

<b>Region</b>	<b>Program</b>	<b>Purpose</b>	<b>Congressional Appropriations</b>
<b>National</b>	Cooperative Research Program	National coordination - National Cooperative Research Coordinator and special workshops	FY01 - \$150K FY02 - \$0 FY03 - \$95K FY04 - \$136.5K FY05 - \$345.7K
<b>Northeast</b>	Cooperative Research Program - Research Partners Program 1/	Administration and supplemental funding for the Northeast CRP	FY01 - \$1.13 million FY02 - \$1.275 million FY03 - \$147.2K FY04 - \$356K FY05 - \$366.7K
<b>Southeast</b>	Cooperative Research Program 1/	Supplemental funding for the Southeast CRP	FY01 - \$340K FY02 - \$339K FY03 - \$91.9K FY04 - \$356K FY05 - \$366.7K
<b>Southwest</b>	Funded under National Cooperative Research Program	Various cooperative research projects	FY01 - \$455K FY02 - \$455K FY03 - \$470K FY04 - \$578.5K FY05 - \$467K
<b>Northwest</b>	Cooperative Research Program (groundfish) 1/	Supplemental funding for the Northwest CRP	FY01 - \$595K FY02 - \$594K FY03 - \$147.2K FY04 - \$356.2K FY05 - \$406.8K
<b>Alaska</b>	Funded under National Cooperative Research Program	Various cooperative research projects	FY01 - \$330K FY02 - \$325K FY03 - \$91.9K FY04 - \$514.5K FY05 - \$536.6K
<b>Pacific</b>	Funded under National Cooperative Research Program	Various cooperative research projects	FY04 - \$329K FY05 - \$389.1K

## **NMFS National Cooperative Research Program**

In FY2001, Congress appropriated \$2.993 million for a national cooperative research program in addition to Congressional line items for several regional cooperative research programs (see Table 1 for funding for all programs). The funds are administered by NOAA Fisheries Headquarters Office of Science and Technology, with the majority of fund distributed to the regional programs to assist in further implementation of research projects (Table 2). The Office of Science and Technology retains minimal funds for national coordination and outreach activities. Several of the regional programs use these national funds to supplement existing regional cooperative research funds (e.g. Northeast, Southeast, and Northwest). Several NMFS regional programs (Alaska, Southwest, Pacific Islands) have been initiated through application of these national funds. Funding levels decreased in FY2003 to a little over \$1 million, but have generally remained stable at about \$2.75 million.

Specific regional projects that have been supported by national cooperative research funds include the following:

- National coordination and special national workshops conducted by NMFS Headquarters Office of Science and Technology.
- Collaborative lobster tagging and longline bird chute testing in the Hawaiian Islands.
- Conservation engineering projects, sablefish logbook program, augmentation of crab surveys, essential fish habitat studies, and electronic logbook reporting in Alaska.
- Adult sardine survey, archival albacore tagging study, California nearshore groundfish survey, and migration and life history studies of North Pacific albacore in the Southwest.
- Longline turtle bycatch studies and supplemental funding for the Cooperative Research Program in the Southeast.
- Supplemental funding for the Northwest port liaison and industry proposal cooperative research projects.
- Supplemental funding for the Cooperative Research Partners Initiative Program in the Northeast.

## **Northeast Cooperative Research Partners Initiative**

In 1999, the NMFS Northeast Fisheries Science Center (NEFSC) and Northeast Regional Office (NERO) developed the Cooperative Research Partners Initiative (CRPI) to formalize and expand collaborative research among New England's commercial fishing industry, marine scientists, and fishery management communities. The goal of this initiative is to enhance the data upon which fishery management decisions are made as well as to facilitate communication and collaboration among New England commercial fishermen, scientists, and fishery managers. Through this initiative, NMFS is collaborating with the New England Fishery Management Council in setting research priorities to meet management and constituent's needs. Congress appropriated \$4 million

in FY2000 and \$15 million in FY2001. Congress regrettably rescinded \$8.25 million of the FY2001 funds in FY2002. In more recent years Congressional appropriations have been around \$3.75 million. CRPI funds short-term projects through a competitive grants program and long-term projects through collaboration with universities, states agencies, and fishing organizations.

### CRPI Competitive Grants Program

The CRPI grants program encourages smaller, short-term cooperative research projects such as habitat studies, conservation engineering or bycatch studies, and socioeconomic research. From 1999-2004, 25 short-term (1- to 2-year duration) research projects totaling \$25 million have been funded. Additionally, some funds are provided to the New England Fishery Management Council for organization and convening of a Research Steering Committee to recommend research priorities, funding of projects, and technical, as well as industry, review of cooperative research projects.

Technical review of all proposals is conducted, with specific evaluation criteria determined depending on the type of request for proposals issued. Examples of typical evaluation criteria include the following:

- Enhances data available for management
- Addresses an immediate need for information
- Contributes to a long-term strategy to rebuild and sustain stocks
- Clearly defines a research hypothesis or articulates the problem it intends to address
- Clearly describes how the project will achieve its stated objectives
- Offers practical solutions to management concerns
- Addresses priority research needs
- States the specific research target population, research methods, study design, study instrument, measurement scales, and analytical procedures
- Promotes collaboration between fishermen and scientists
- Involves a strong research partnership that is highly likely to succeed
- Involves a high degree of pro-active participation by fishermen in the design and conduct of research
- Addresses fishermen's interests and concerns

### CRPI Long-Term Cooperative Programs

The long-term CRPI programs are focused on fisheries-dependent and -independent data collection programs. The three long-term programs currently being implemented include: 1) Industry Based Surveys (IBS) - industry-based resource surveys to collect fishery-independent information, 2) Study Fleet - development of a fisherman's study fleet to collect fishery-dependent information in higher resolution and in "near real-time", and 3) Atlantic Cod Tagging Program - cod tagging to study mixing rates among stocks, individual fish movements, spawning or feeding aggregation patterns.



The Industry-Based Resource Survey is a partnership between four New England states (Maine, New Hampshire, Massachusetts, and Rhode Island), NMFS, and the fishing industry to collect data pertinent to Gulf of Maine cod and Southern New England yellowtail flounder stocks. The purpose of this program is for the fishing industry to assist in providing higher-resolution fishery independent data in near-shore areas. The focus of the Gulf of Maine cod assessment is to monitor nearshore cod stocks, assess the importance of these areas as nursery and spawning grounds, and provide more detailed information for management purposes. The focus of the Southern New England Yellowtail Flounder Project is to derive precise estimates of the abundance of Southern New England yellowtail flounder using intense sampling with industry designed "flatfish" trawls.

In collaboration with New England groundfish fishing fleets, NMFS has developed the CRPI Study Fleet Program. The CRPI Study Fleet Program is a project to develop and implement state-of-the-art electronic data reporting devices for use aboard groundfish fishing vessels in the Northeast (this project was piloted in 2004). The goal of the project is to design and field test electronic reporting hardware for collecting, recording, and transferring more accurate and timely fishery-based data.

The Northeast Regional Cod Tagging Program represents the largest cod-tagging program initiated in the Northwest Atlantic. A significant example of collaborative research, this program is international and region-wide, involving commercial fishermen and research organizations from Canada down to Cape Cod. The program design is based on recommendations gathered during public meetings convened by the New England Aquarium and funded by CRPI. The regional cod tagging program is funded by CRPI and coordinated by the Gulf of Maine Research Institute. The program will run for a minimum of two years beginning in 2004, during which time over 100,000 Atlantic cod will be tagged and released throughout the Gulf of Maine and neighboring waters in Canada and Southern New England. The objectives of this study are to: (1) monitor and identify migration patterns, (2) quantify mixing rates, (3) obtain growth and maturity information, and (4) investigate the roles of temperature, depth and reproductive condition.

The NEFSC is working with fishermen throughout New England, the Massachusetts Division of Marine Fisheries, the Rhode Island Division of Fish and Wildlife, and the School of Marine Science and Technology, UMASS, Dartmouth, to tag yellowtail flounder in an on-going collaboration to better understand yellowtail movements, mortality and aging. Funding to support this program has been provided by the NMFS Fisheries Stock Assessment Improvement Program, the Northeast Consortium, and the NMFS National Cooperative Research Program. The objectives of this study are to (1) estimate movement rates among yellowtail fishing grounds, (2) provide independent estimates of mortality, (3) confirm age determinations, and (3) foster cooperative relationships between scientists and fishermen. Funding from the Northeast Consortium provides the necessary cooperation with industry in the form of vessel contracts and local knowledge of yellowtail distribution and seasonal habits. The study will contract commercial fishing vessels to tag and release approximately 20,000 legal-sized yellowtail

from the Gulf of Maine to Georges Bank. The CRPI and Northeast Consortium tagging are being integrated into a single coastwide experimental and analytical design. Canada Department of Fisheries and Oceans began tagging on Georges Bank in 1999 and has also agreed to collaborate on the experimental design and recapture information.

Long-term cooperative research surveys and tagging programs have also been developed by NMFS scientists, fishing industry and academia taking the initiative to plan and implement priority research projects. Several examples include surf clam/ocean quahog surveys, species-specific tagging programs, a cooperative monkfish survey, and an *Illex* squid data collection program. These programs were initiated in response to controversies over information used for fishery management and represent a collaborative effort between scientists at the NEFSC and members of the fishing industry. Several of these surveys, including the monkfish and surf clam/ocean quahog surveys and the squid data collection program, are funded through internal NEFSC funds, the commercial fishing industry, or other funding sources.

#### Other Northeast Cooperative Projects

Many cooperative research programs in the Northeast are funded through internal NEFSC funds or other funding sources, such as MARFIN or the National Cooperative Research Program. Examples include the following:

- Black Sea Bass Cooperative Tagging Project - to determine the population size, exploitation rate and general movements of the northern Atlantic (Cape Hatteras, North Carolina to the Gulf of Maine) black sea bass. Organizations involved in this cooperative tagging program include the American Littoral Society, NOAA Fisheries, New Jersey Fish, Game and Wildlife, MARMAP, and the Virginia Game Fish Tagging Program.
- Cooperative Monkfish Survey – to collect research survey data on the monkfish resource, including distribution, abundance, and biological characteristics. The survey uses a chartered fishing vessel and has been conducted since 2001.
- Cooperative Surf Clam/Ocean Quahog Survey – initiated in 1997 as a partnership between the NEFSC and the fishing industry. The NEFSC clam survey is conducted every three years, while use of additional commercial fishing vessels provides an opportunity to evaluate the survey.
- Cooperative Shark Tagging Program – part of continuing research on the biology of large Atlantic sharks. Initiated in 1962 and expanded in subsequent years to include over 6,500 volunteers.
- Data Collection Feasibility Studies for Real-Time Management of *Illex* Squid - *Illex* squid feasibility study conducted cooperatively between NMFS and the *Illex* squid fishery during the 1999 and 2000 fishing seasons.

#### Northeast Consortium

The Northeast Consortium was created in 1999 to encourage and fund effective, equal partnerships among commercial fishermen, researchers, and other stakeholders to become

active participants in cooperative research and development of selective fishing gear technology. The Northeast Consortium consists of four research institutions (University of New Hampshire, University of Maine, Massachusetts Institute of Technology, and Woods Hole Oceanographic Institution). An Advisory Committee provides programmatic advice and guidance and makes recommendations regarding the selection of projects.

The Consortium funding level is typically \$5 million annually (somewhat less after NOAA adjustments). Goals of the Consortium are (1) to develop partnerships between commercial fishermen and researchers, educators, and coastal managers; (2) to enable commercial fishermen and commercial fishing vessels to participate in cooperative research and develop selective gear technologies; (3) to help bring fishermen's information, experience, and expertise into the scientific framework needed for fisheries management; and (4) to equip and utilize commercial fishing vessels as research and monitoring platforms.

The intent of the Consortium is to provide funding for projects that address fisheries and ocean management issues in the Gulf of Maine and George's Bank. The Consortium is interested in funding topics that are of interest and priority to the partners, i.e., the fishermen and the scientists. Often this means projects also address the need for fundamental information with longer-term applications for fisheries management, coastal ocean management, and coastal ocean observation. General research areas for funding include (1) selective gear research and development, (2) monitoring of closed areas, (3) fish habitat studies, (4) oceanographic and meteorological monitoring, and (5) socio-economic impact assessments.

Consortium funds are issued through a competitive Request for Proposal (RFP) process, with two RFP's issued per year. One RFP funds cooperative research projects and a second funds development projects (up to \$25,000) that have potential for future cooperative research initiatives. Funding is balanced with 25% to research and 75% to industry. Proposals must include as key participants both one or more scientists (e.g. faculty or staff members at institutions of higher learning or accredited research facilities, or employees of state or federal programs or agencies) and one or more commercial fishermen. Funding decisions for cooperative research projects are based upon evaluation of proposals according to the following criteria (in priority order):

- Importance of the proposed idea for oceanographic and fisheries research and management.
- Technical merit of the proposal and the project as proposed.
- Opportunities for partnership between commercial fishermen and researchers.
- Impact of the proposed work on an end-user community.
- Experience of the project proposers; available resources for the project.
- Results from prior cooperative research support.

The Northeast Consortium undertakes comprehensive extension and outreach activities, including the following: (1) annual project participants meeting in October, (2)

community-based outreach subcontractors in Maine, New Hampshire, and Massachusetts to inform the fishing industry of cooperative research opportunities and provide technical assistance in proposal development, (3) match-making between fishermen and scientists partners, (4) assistance to investigators working with NMFS to obtain EFPs, and (5) assistance to fishermen and scientist participants in research planning activities. A Fisheries and Oceans Data Management System has been developed to serve all Northeast Consortium-funded data (<http://nec.who.edu/>) and the Consortium has hired dedicated staff to work closely with individual PIs and projects to advance their data to appropriate end users (i.e., coordinating with NEFMC and NMFS, ensuring appropriate review to ensure data quality, addressing end-user needs).

The Northeast Consortium addresses the need for fundamental information with both immediate and longer-term application for fisheries management, as well as coastal ocean management and coastal ocean observation. The focus and mission is broader than the NMFS / NEFMC priorities for immediate needs for fisheries management. The difference in mission and goals between the Consortium and NMFS is both practically and strategically important. Practically, it ensures that efforts are complementary rather than competitive or duplicative. And strategically, it helps ensure that research focuses on both immediate and longer-term (2 to 5 years) needs for fisheries managers, industry, scientists, and other important stakeholder groups.

### **Research-Set-Aside Programs**

Research set-aside programs (RSA) are administered through the New England and Mid-Atlantic Fishery Management Councils (NEFMC and MAFMC). The MAFMC allows up to 3% of total allowable landings (TAL) of several species to be used for research endeavors (squid, Atlantic mackerel, butterfish, bluefish, tilefish, scup, summer flounder, black sea bass). This program provides a mechanism to fund research and compensate vessel owners through the sale of fish harvested under the research quota. The MAFMC research set-aside program was established through Framework Adjustment 1 and the RSA provisions of the Tilefish Fishery Management Plan (FMP). Framework 1 established a procedure through which RSA amounts would be set annually as part of the MAFMC's quota-setting process. The MAFMC's Research Set-Aside Committee provides oversight to this program.

The NEFMC allows up to 1% of the total allowable catch (TAC) or days-at-sea (DAS) allowance in the sea scallop fishery to be used for research. Vessels participating in an approved research project may be authorized by the Northeast Regional Administrator to harvest and land species in excess of any imposed trip limit or during fishery closures. Research set asides were established through Amendment 10 to the Sea Scallop FMP. Amendment 10 allows research under a days-at-sea set-aside for use in areas open to all fishery participants, and a TAC set-aside for use in the Hudson Canyon Area. In 2004, the NEFMC initiated development of Framework Adjustment 16 and Framework Adjustment 39, which would allow research activities in the Groundfish Closed Areas. A value is set on the RSA's by estimating the mean value per pound of scallops and the

estimated catch rate per DAS (e.g., price per pound X catch rate = total value of the research).

Priorities for research under these programs are set by the respective Regional Fishery Management Council. In general, projects funded under an RSA allocation must enhance understanding of the fishery resource or contribute to the body of information on which management decisions are made. No federal funds are provided for research under these programs. The NMFS may issue an Exempted Fishing Permit (EFP) or Letter of Acknowledgement (LOA) to provide special fishing privileges in response to research proposals selected for funding. Any additional funds generated above the cost of the research activities (or excess program income) can be retained by the vessel owner as compensation for the use of the vessel. Funds generated from the RSA landings can be used to cover the cost of the research activities, including vessel costs, and to compensate boats for expenses.

The Councils incorporate the level of RSA for each set-aside species into the Council's recommendations for annual quota specifications. NMFS considers the recommended level of RSA as part of the associated rulemaking process.

### **Southeast Cooperative Research Program**

The Southeast Cooperative Research Program (CRP) was initiated in FY2001 and is a competitive Federal assistance program that funds projects seeking to increase and improve the working relationship between researchers from NMFS, state fishery agencies, universities, and fishermen. The principal goal of the CRP is to provide a means of involving commercial and recreational fishermen in the collection of fundamental fisheries information to support the development and evaluation of management and regulatory options. Projects should focus on the greatest probability of collecting data that aids in recovery, maintaining or improving the status of stocks upon which fisheries depend; improving the understanding of factors affecting recruitment success and long-term sustainability of fisheries; and/or generating increased values and opportunities for fisheries. Projects are evaluated as to the likelihood of achieving these objectives, with consideration of the magnitude of the eventual social and economic benefits that may be realized.

In FY2001, Congress appropriated \$2.5 million for cooperative research in the Southeast with the objective of developing collaborative relationships among NOAA Fisheries, the scientific community, and the fishing industry. In FY2002, Congress appropriated \$3 million and in FY2003 and FY2004 funding levels increased to about \$3.2 million. Funding levels again increased in FY2005 to \$4.2 million.

A workshop was held in April 2002 to establish objectives and research priorities for the CRP. The objectives of the program are to improve scientific information, encourage collaboration, improve communication, use fishermen's expertise and vessels, and involve all sectors of the fishing industry in the cooperative program. Particular areas of research interest identified through this workshop include measurement of fishing effort

for the Gulf shrimp fishery, using electronic logbooks to enhance data collection of catch and effort in the south Atlantic snapper-grouper fishery, collaboration between the recreational fishing industry and state agencies to establish and maintain artificial reef structures for angling, development of turtle excluder devices (TED's) and bycatch reduction devices (BRD's) for the shrimp fishery, and projects designed to minimize bycatch for pelagic longline fisheries.

The program is administered by the Southeast Fisheries Science Center (SEFSC), assisted by the State/Federal Liaison Office in the Southeast Regional Office (SERO). Proposals submitted for funding under this program must have a NMFS partner and address one of the funding priorities for federally managed species. Proposal evaluation criteria include the following:

- Does the proposal have a clearly stated goal(s) with associated objectives that meet the needs outlined in the project narrative?
- Does the proposal clearly identify and describe, in the project outline and statement of work, scientific methodologies and analytical procedures that will adequately address project goals and objectives?
- Do the principal investigators provide a realistic timetable to enable full accomplishment of all aspects of the research?
- How effective are the proposed methods in enabling the principal investigators to maintain stewardship of the project performance, finances, cooperative relationships and reporting requirements?
- Does the budget appropriately allocate and justify costs?

Projects funded through Southeast cooperative research funds include studies to evaluate the effective of BRD's in finfish reduction and shrimp retention, cooperative statistics data collection, cooperative shark research, and developing indices of swordfish longline recruitment.

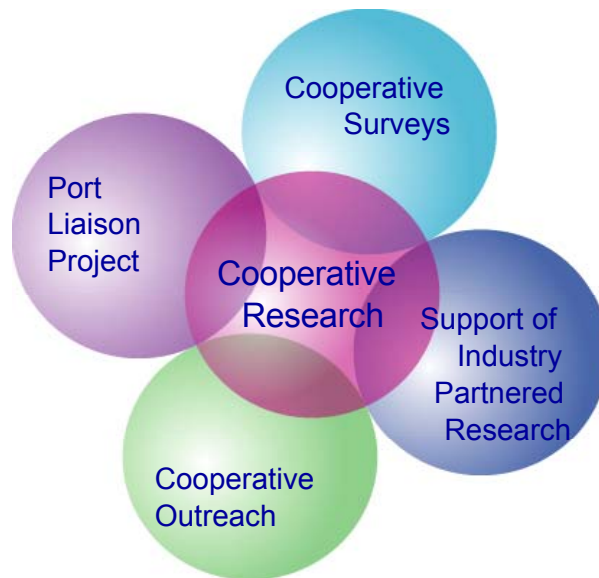
### **South Carolina**

In FY2004, Congress appropriated \$1.979 million to conduct high priority cooperative fisheries research projects applicable to resources off the South Carolina coast. Funds were distributed to South Carolina Department of Natural Resources for allocation to cooperative research projects.

### **Southwest**

Cooperative research programs in the Southwest are currently funded through the national cooperative research program. Studies supported by these funds include studies on Hawaii longline bird chute testing, albacore archival tagging, and migration and life history patterns of North Pacific albacore. Several cooperative resource surveys are also conducted including a sardine resource survey and a California nearshore groundfish survey.

## **Northwest Groundfish Cooperative Research Program**



*Mission-- To include the broadest section of the fishing community possible in innovative and credible research to provide scientific advice for the management of west coast groundfish and their ecosystems*

*Near Term Goal-- To develop a program with several levels of cooperation in able fishing community to participate at their level of comfort*

The groundfish group at the Northwest Fisheries Science Center (NWFSC), in support of its mission to provide the scientific basis for management of the west coast groundfish stocks, is committed to forming solid research partnerships with the commercial fishing industry based upon sound science in recognition of our common goals and objectives and the need to build and maintain mutual trust and respect. These research partnerships span a continuum of involvement and cooperation. Examples may include: vessel charters with reduced opportunities for industry input where fishermen provide a platform for scientists to research a specific question; more collaborative projects where industry is involved in the design, conduct, and analysis of the research; providing funding directly to industry to develop and research issues of interest to them or corresponding to existing groundfish research priorities; or a scenario involving some combination of these attributes. In keeping with the goal of providing industry an array of opportunities to participate in west coast groundfish research, the NWFSC has several new and ongoing projects that make use of industry-scientist cooperation. Partial funding for these projects is provided through Congressional appropriations of \$989K in FY2004 and \$493 in FY2005.

Resource Surveys –The groundfish program’s core duties include several annual surveys that monitor the status and trends of groundfish stocks. Presently, four of the resource

surveys utilize industry input through various combinations of providing research platforms, consultation on at-sea decisions such as where to make sets or tows, suggestions on appropriate sampling gear and other equipment, and the development of the research design.

These surveys include the shelf/slope trawl survey which began in 1998, the triennial shelf survey, a pilot sablefish pot survey which began in 2002, and the shelf rockfish hook and line survey in the Southern California Bight which began in 2003. During the course of these surveys, at least 19 different industry vessels have been chartered and have included four gear types, both the sport and commercial industries, and ports from Newport Beach, CA to Astoria, OR.

Port Liaison Project – The Port Liaison Project (PLP) was developed in 2002 to provide opportunities for industry to participate in already-funded federal, state, university, and non-profit marine research. Funded by the Center, the PLP establishes an industry liaison in major ports along the west coast. Each liaison, in turn, cultivates a network of potential industry “cooperators” in those ports. Researchers then work with these liaisons to identify cooperators best suited for their specific project goals. Although the PLP does not fund new research ideas, it provides a mechanism and funding for scientists of all affiliations to supplement their present research by engaging the industry through interviews and consultation, providing research platforms, serving as research partners, or some other manner of cooperation.

Industry Initiated Research Proposals – The Center funds a Request for Proposals (RFP) from partnerships of industry and scientists to submit research ideas to be funded through a competitive process. Pacific States Marine Fisheries Commission (PSMFC) serves as administrator of the funds and the selection process includes personnel from NWFSC, the Southwest Fisheries Science Center, state fish and wildlife agencies, and west coast universities. Research proposals consistent with existing groundfish research priorities are given preference, but other original research ideas are eligible as well. Five projects were funded annually since 2002 and included research on discard mortality, bycatch reduction in the southern California shrimp trawl fishery, and comparing results from hook and line groundfish surveys with ROV visual estimates.

Pacific Whiting Conservation Cooperative Juvenile Hake and Rockfish Survey – The Center provides funding to the Pacific Whiting Conservation Cooperative (PWCC) to jointly conduct an annual hake pre-recruit survey. PWCC, an organization of vessels within the catcher/processor sector of the midwater hake fishery, contracts with scientific consultants and provides a research platform to annually monitor the health and abundance of sub-adult hake before they are recruited to the commercial fishery.

Outreach and Fisheries Research Websites – In order to provide a ready source of information to west coast scientists and industry personnel interested in collaborating on research ideas, Pacific Marine Conservation Council (PMCC) under contract with the Center built a website that facilitates industry-scientist partnerships and serves as a clearinghouse for information on west coast fisheries research. Borrowing from the



successful Gulf of Maine-area website [www.FishResearch.org](http://www.FishResearch.org), a west coast version was developed: [www.FishResearchWest.org](http://www.FishResearchWest.org). The website provides information on current and upcoming research opportunities, information for industry on how to navigate the governmental contractual environment, and a database of fishermen and scientists interested in participating in cooperative research.

<http://Heads-Up.net> is an outreach website aimed primarily at the west coast commercial fishing industry to provide timely information on issues including management and regulatory changes, weather, safety, seafood marketing, and research. It is sponsored by several industry and governmental organizations. The NWFSC contributes funds to Heads-Up.net to help cover the costs of updates and website maintenance.

Community Management – In 2003, the Center provided funds for a consortium of agency and private researchers, industry members, and non-profit organizations to conduct an array of biological and social science research exploring the feasibility of a community management regime in Port Orford, OR. This community, historically dependent on a local nearshore reef to provide jobs and income through sport and commercial fishing, tourism, and recreation, sought to augment state and federal fisheries research with a more focused research plan aimed at understanding the interaction between the rocky and kelp nearshore habitats, the species these habitats support, and the long term economic and social requirements of the community.

Scientists and Fishermen Exchange – NWFSC scientists participate in the Scientists and Fishermen Exchange (SAFE), self-described as “an informal group of fishermen and scientists working together to build trust and a mutual understanding of the industry and ocean sciences” that seeks “to provide an open environment for discussing research activities, needs for scientific information and potential collaborations that are relevant to marine issues.” Other participants in these occasional meetings include members of the commercial fishing industry, several Oregon State University departments and laboratories, and Oregon Sea Grant. SAFE meetings are typically held in Newport, OR, a coastal town with a strong industry presence in a setting comfortable to both scientist and industry participants. Hostile dialogue, using the meeting as a forum for personal agendas, and any personal disrespect are explicitly prohibited at these meetings allowing for a free flow of ideas, research progress reports, and anomalous or otherwise interesting qualitative observations.

## **Alaska**

The history of cooperative research in the waters off Alaska is long, and it has been remarkably successful and productive. Early research surveys conducted in the late 1940's were the precursor of routine, regular (annual, biennial, and triennial) groundfish surveys now carried out by the Alaska Fisheries Science Center (AFSC). Collaborative studies from the 1950's to 1970's mainly focused on conservation engineering studies. The AFSC uses chartering of commercial fishing vessels almost exclusively, because the amount of sea time required greatly exceeds the amount of research vessel time available. The NOAA vessel *Miller Freeman* is used for fisheries oceanography and acoustic

surveys, and is not available to support fisheries resource surveys. These cooperative resource surveys are designed and directed by NMFS, the sampling and data collection are conducted by NMFS personnel, and great care is taken to address consistency. The work is cooperative in that it relies heavily on the skill, experience, and participation of captains and crew for carrying out the fishing operations in support of the scientific objectives of the surveys. Seven to eight commercial fishing vessels are currently chartered by the Center.

For nearly 30 years, NMFS and the fishing industry have cooperated on a broad range of studies in such areas as commercial and research gear development, studies of marine mammals and seabirds, and collection of fish samples for utilization research, age and growth studies, feeding behavior, maturity and reproductive research, and other aspects of fish biology and ecology. In the Gulf of Alaska and the Bering Sea/Aleutian Islands areas, ongoing industry/agency cooperation supports a substantial marine fisheries observer program. Costs of this program are typically shared between the agency and the industry.

The AFSC strives to build long-term cooperative relationships with all fishing sectors. Priorities for cooperative research activities are bycatch reduction, improving stock assessments (sablefish and pollock), and essential fish habitat (EFH) research. Cooperative research studies conducted by the AFSC include a sablefish longline survey, which is an industry designed survey to collect information on abundance and geographic allocation of sablefish. Commercial fishing vessels compete for the charter and are allowed to retain sablefish catches. In 2004, the AFSC initiated formal collaboration with the crab industry to establish a non-profit research foundation. A Memorandum of Agreement was developed with both the industry and AFSC contributing about \$100K each. In addition to this project AFSC funded nine other cooperative research projects in 2004 and 2005. Funding is also provided by the National Cooperative Research Program to conduct specific cooperative research studies, such as conservation engineering studies, development of fisheries databases, implementation of logbook programs, studies to improve fishing gear selectivity, and essential fish habitat studies.

### **Pacific Islands**

Cooperative research programs in the Pacific Islands are currently funded through the national cooperative research program. In 2003, funds were provided to the Southwest Fisheries Science Center for a study on Hawaii longline bird chute testing that benefited the Pacific Islands. Starting in 2004, funds were provided to the Pacific Islands Fisheries Science Center to support a collaborative lobster tagging study in the Northwestern Hawaiian Islands. This project augments shortfalls in programmatic funding for chartered commercial fishing vessels participating in an ongoing spiny lobster and slipper lobster tagging program.

### **Other Cooperative Research Programs**

There are many other federal programs that support cooperative research with

commercial and recreational fishermen which are not directly funded through Congressional ‘earmarks’ for cooperative research, including funds appropriated for bycatch reduction, highly migratory species research projects, Sea Grant projects, and projects supported through Saltonstall-Kennedy funding.

### Reducing Bycatch

Congressional funding was appropriated in FY2004 to carry out projects to conduct public-private bycatch gear research and testing and to enhance and coordinate technical expertise to respond to fisheries bycatch issues. Projects are selected based on their importance to Regional and Atlantic Highly Migratory Species Bycatch Implementation Plans, likelihood that results will be produced in a timely manner, regional prioritization, and continuation of successful projects. Projects that have been funded include development of halibut excluders for Gulf of Alaska groundfish fisheries, development and transfer of gear modifications and fishing practices to reduce turtle takes in pelagic longline fisheries, development and testing of gear modifications to reduce marine mammal and turtle bycatch, and the development and testing of real-time reporting of observer data on the high seas.

### Highly Migratory Species

NOAA Fisheries Highly Migratory Species Division has funded several cooperative research projects to provide information to improve management of highly migratory species. Specific projects include a study working with the recreational fishery to collect young-of-the-year bluefin tuna for genetic analysis, implementation of a cooperative shark resource data collection system (including biological sampling, tagging, and observer coverage), and research to find modified pelagic longline fishing methods which reduce the incidental capture of sea turtles.

### Sea Grant

Sea Grant is a partnership between the nation’s universities and NOAA. There are three leadership components within Sea Grant: (1) NOAA’s National Sea Grant Office, (2) the National Sea Grant Review Panel, and (3) State Sea Grant Program Directors. NOAA’s National Sea Grant Office (NSGO) administers funding to the Sea Grant colleges throughout the nation and oversees several national funding competitions. The National Sea Grant Review Panel advises NOAA’s secretary, the undersecretary for oceans and atmosphere, and the director of the National Sea Grant College Program on scientific and administrative policy. The State Sea Grant Directors coordinate program activities, setting local, regional and national priorities. There are currently 30 Sea Grant programs, one for each coastal state.

The Sea Grant Extension Program infrastructure includes over 250 extension agents (about 50 agents working on fisheries issues), 70 communication specialists, and 25 education specialists. There is national coordination and leadership, but regional planning and priority setting with flexible local implementation. The Sea Grant

Programs have various roles including liaison, conceptualizing and implementing technology transfer plans, gear development and applied research, data collection and coordination of observers, and communication. The North Carolina and Virginia Sea Grant Extension Programs have funding for fisheries industry resource grants specifically to develop cooperative projects.

#### Saltonstall-Kennedy

The Saltonstall-Kennedy Act established a fund (known as the S-K fund) that the Secretary of Commerce uses to provide grants or cooperative agreements for fisheries research and development projects. Under this authority, grants and cooperative agreements are made annually on a competitive basis (subject to funding) to assist in carrying out projects related to U.S. commercial and recreational fisheries. The S-K Grant Program funding priorities are consistent with the goals and objectives of the NOAA and NMFS Strategic Plans and the Magnuson-Stevens Act. The objective of the S-K Grant Program is to address the needs of fishing communities in optimizing economic benefits within the context of rebuilding and maintaining sustainable fisheries, and in dealing with the impacts of conservation and management measures. The S-K fund is capitalized through annual transfers by the Secretary of Agriculture to the Secretary of Commerce of amounts equal to 30 percent of the gross receipts collected under the customs laws on imports of fish and fish products. All S-K projects provide benefits to fishing communities and the fishing industry. Many of these projects are either conducted directly by the fishing industry or individual fishermen, or are conducted in collaboration with fishermen.